Timberland Resource Consultants

Joint Timber Management Plan

For

Robert Landry

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TIMBER MANAGEMENT GUIDE

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JOINT TIMBER MANAGEMENT GUIDE

1. CURRENT PROPERTY OWNERS:

Parcel 1
Michael Kavanaugh
P.O. Box 104
Honeydew, California 95545
A.P. 107-112-001

Parcel 2
Michael Kavanaugh & Robert Landry
2333 Harris Street
Eureka, CA 95503
A.P. 107-112-002

Parcel 3
Kevin O'Donnel
2 Greglen Avenue
Nantucket, MA 02554
A.P. 107-112-003

2. PROJECT DESCRIPTION

A Joint Timber Management Plan (JTMP) applies to "division" of land into assessor parcels containing less than 160 acres of Timber Production Zone (TPZ). Parcel is defined as "that portion of an Assessor's parcel that is timberland". Activities that may result in such a division include subdivision, lot line adjustment and conveyances of existing land units (e.g. land patents) underlying an Assessor's parcel zoned TPZ, when any conveyance contains less than 160 acres of TPZ land.

The project involves a Lot Line Adjustment involving three separate legal parcels, which are Parcel 1 - 39 acres (APN 107-112-001), Parcel 2 - 120 acres (APN 107-112-002), and Parcel 3 - 160 acres (APN 107-112-003) in size. The resultant parcel sizes after the Lot Line Adjustment will be a gain of 49 acres to Parcel 1 which will then total 88 acres, a loss of 50 acres from Parcel 2 which will then total 70 acres, and with parcel 3 remaining at approximately 160 acres with no net gain or loss. The Lot Line Adjustment is intended to dissolve the co-ownership of Parcel 2 between Michael Kavanaugh and Robert Landry. Parcel 1 is currently owned by Michael Kavanaugh, therefore his portion of the co-owned Parcel 2 will be added on to Parcel 1. The proposed new property line between Parcels 1 and 2 will follow a Blue Line, Class II watercourse with steep side slopes, creating a new boundary line that is congruous with the surrounding topography. The northern portion of the proposed line between Parcels 2 and 3 is being moved easterly to the access road to Parcel 3 and the southern portion of the same line is being moved westerly so that existing storage sheds associated with Parcel 3 will be located entirely on Parcel 3. The area of land proposed to be adjusted between the three parcels is not expected to significantly impact the future viability of the TPZ zoned portions of the parcels for future timber management. Acres for this JTMP were derived using USGS maps in combination with Humboldt County Assesor's Parcel Maps.

The purpose of the Joint Timber Management Plan is to provide a management guide for harvesting timber for all parcels affected by the division of land. This Joint Timber Management Plan includes both a "*Timber Management Plan*" and a "*Timber Management Guide*". The objective of the *"Timber Management Plan"* is to identify joint access, rights-of-ways and the minimum stocking requirements of the Forest Practice Rules required to maintain viable timber producing management units. The objective of the *"Timber Management Guide"* is to provide a descriptive document that describes the property and outlines the management opportunities to the landowners.

3. MANAGEMENT OBJECTIVES

The timber management objectives are to achieve a maximum sustained production of high quality timber products while retaining aesthetic, recreational, watershed, wildlife, and fisheries resources. The JTMP area is predominantly stocked with hardwood with a minor component of second growth Douglas-fir. Consequently, any management in the near-term will likely consist of even-aged regeneration methods and/or intermediate

treatments. The retention of aesthetic, recreational, watershed, wildlife, and fisheries resources shall be met by following the California Forest Practice Rules. The long-term JTMP management objective is to balance growth and harvest over time to obtain a sustainable periodic return and this may occur using either even-aged or uneven-aged prescriptions.

4. LEGAL DESCRIPTION

Management Unit 1 (Parcel 1) – Upon completion of the Lot Line Adjustment, the majority of Management Unit 1 (approximately 80 acres) will be located in the west half of the northwest ¼ of Section 4, Township 3 South - Range 1 East, H.B.M. Additionally, approximately 8 acres of Management Unit 1 will be located in the southeast ¼ of the northwest ¼ of Section 4, Township 3 South - Range 1 East, H.B.M after the lot line adjustment. This area is currently in APN 107-112-001 and 002, which are zoned Forest Recreation and Timber Production Zone respectively. After the lot line adjustment, Management Unit 1 will be entirely contained within APN 107-112-001 and will have a mixed zone of Forest Recreation and Timber Production Zone. The resulting Management Unit 1 following the LLA will be 89 acres. Management Unit 1 is located on the Honeydew 7.5' quadrangle.

Management Unit 2 (Parcel 2) – Upon completion of the Lot Line Adjustment, the majority of Management Unit 2 (approximately 62 acres) will be located in the east half of the northwest ¼ of Section 4, Township 3 South - Range 1 East, H.B.M. Additionally, approximately 8 acres of Management Unit 2 will be located in the northwest ¼ of the northeast ¼ of Section 4, Township 3 South - Range 1 East, H.B.M after the lot line adjustment. This area is currently in APN 107-112-002 and 003, which are both zoned Timber Production Zone. After the lot line adjustment, Management Unit 2 will be entirely contained within APN 107-112-002 and will continue to be zoned Timber Production Zone. The resulting management unit following the LLA will be 70 acres. Management Unit 2 is located on the Honeydew 7.5' quadrangle.

Management Unit 3 (Parcel 3) – Upon completion of the Lot Line Adjustment, the majority of Management Unit 3 (approximately 150 acres) will be located in the west half of the northeast ¼ of Section 4; and the north half of the southeast ¼ of Section 4, Township 3 South - Range 1 East, H.B.M. Additionally, approximately 10 acres of Management Unit 3 will be located in the east half of the northwest ¼ of Section 4, Township 3 South - Range 1 East, H.B.M after the lot line adjustment. This area is currently located in APN 107-112-002 and 003, which are both zoned Timber Production Zone. After the lot line adjustment, Management Unit 3 will be entirely contained within APN 107-112-003 and will continue to be zoned Timber Production Zone. The resulting management unit following the LLA will continue to be 160 acres. Management Unit 3 is located on the Honeydew 7.5' quadrangle.

5. GENERAL LOCATION AND ACCESS

The JTMP area is located approximately 2 air miles east of Honeydew, California. The JTMP area is accessed by a 2.5 mile private, rocked road (Doreen Drive) that leads from Mattole Road (county road). Management Unit 1 is accessed by a private rocked road off of Doreen Drive. Management Units 2 and 3 are accessed by private rocked roads separate from the Management Unit 1 access road. Management Units 2 and 3 share existing access roads. The existing roads which accesses management units rock surfaced seasonal roads. The roads appear suitable for non-winter hauling and year round passenger vehicle access. The grade of the existing seasonal roads are less than 16%. The road grades are suitable for hauling logs from the management units. The access road should be adequately drained using a combination of outsloping, insloping with cross drains, water bars and rocked rolling dips to avoid concentrated runoff that may cause erosion. The road system within the JTMP area is adequate for servicing the property for timber management activities, however minor spur road construction may be needed to increase efficiency. If new roads are deemed necessary in the future, which are not shown on JTMP maps, they should be established in the best possible location as determined by an RPF. Landowners should consult with an RPF prior to the establishment of any new roads. Any road construction occurring within the JTMP area should be permitted under an approved THP or will be subject to Humboldt County's Grading Ordinance. http://co.humboldt.ca.us/planning/building/documents/grad_ord.pdf

See the "*Timber Management Plan*" for a description of access required for timber management.

6. HARVEST METHODS

The entire JTMP area can be yarded using a combination of ground based and cable based yarding. The JTMP Map shows the areas suitable for each yarding method. Ground based yarding generally occurs on slopes less than 50%. The JTMP area was logged in the past utilizing ground based methods which established a skid trail network that led down to roads located adjacent to the major drainages. The majority of these old existing skid trails and roads are located very close to the major watercourses and are washed out. Also, these old historic logging roads do not connect with the current road system, which is located on or near ridgetops. For future tractor and cable yarding operations, it is not anticipated that new truck roads or skidtrails will be required to be established across management unit boundaries. However, future logging operations may need additional road and skid trail construction within the ground based yarding areas. However, no location was observed that would require a skid trail to be established across management unit boundaries. To effectively yard the management units, skid trails may be required to cross watercourses. The crossing of watercourses by skid trails may require permitting under the CDFW 1600 process. The CDFW 1600 process is required when any substantial change is made to the bed and/or bank of a watercourse, regardless if such operations are associated with timber harvesting or not.

Cable yarding generally occurs on areas that are not accessible by tractors due to steep topography, watercourses and/or property lines. Although most of the areas designated as cable yarding were logged in the past using ground based equipment, today's standards favor that these areas be harvested using cable yarding systems. Within the areas suitable for cable yarding, roads are positioned to provide cable yarding settings that provide adequate deflection and access to the cable yarding areas of the JTMP. However, as previously noted, minor spur road construction may be needed to increase efficiency. As shown on the JTMP Map, the southeastern portion of Management Unit 2 may need to be cable yarded from roads and landings located on Management Unit 1. Within the cable yarding areas, tractor operations, limited to the use of a few designated skid trails, may be required to access long corners, and/or to bunch logs. When cable yarding occurs, both management units should consider harvesting concurrently to alleviate the cost of multiple entries and the filing of separate Timber Harvest Plans.

7. PHYSICAL DESCRIPTION

Soils in the JTMP area are the Hugo (812) Series. Hugo surface soil has grayish brown loam topsoil and pale brown clay loam subsoil. The parent material is sandstone and shale. The soil has moderately rapid permeability with good to excessive drainage. These soils are generally 20 to 40 inches deep to a restrictive layer. Its suitability for timber production is high. *The Soil-Vegetation Map* for the Honeydew 7.5' USGS quadrangle shows Management Unit 1 as Site Class III. The majority of Management Units 2 and 3 are shown as Site Class III with some of the areas being shown as Site Class IV. A portion of Management Unit 1 typed as grass on these maps is currently filled in with tree canopy.

The JTMP area is underlain by Undifferentiated Franciscan. The Geomorphic Features Map reveals the presence of Amphitheater Slopes, Dormant Translational/Rotational Slides, and Active Slides too small to delineate within the JTMP area. Field observations confirmed that some of these mapped features are indeed "unstable areas" per 14 CCR 895.1. Based upon the presence of these features, future timber operations may have the potential to affect slope stability through the displacement of soil, division or concentration of drainage, reduction in interception or transpiration and/or reduction in root strength. Therefore, future THP/NTMPs may require input from a licensed geologist.

8. TIMBER HARVEST HISTORY

Based upon aerial photo review and field observations, it appears that timber harvesting occurred in the 1950s or 1960s. The first entry harvested old growth Douglas-fir and harvest intensity varied based upon conifer stand density. Second harvests occurred in the 1970s or 1980s and most likely removed residuals left over from the original entry. Both entries appear to have been conducted using tractor yarding operations.

The last timber harvest in the area was conducted under THP 1-98-054 HUM, with logging occurring in 1999 to 2000. This THP covered a total of 140 acres and was located on parts of all three of the current management units in this JTMP. That THP targeted the large, scattered old growth Douglas-fir timber and included 86 acres of seed tree removal, 2 separate units of rehabilitation of understocked areas totaling 22 acres, 20 acres of alternative prescription, and 10 separate units of clearcutting that totaled 12 acres. Yarding of the THP was by

tractor yarding and helicopter yarding. This timber harvest on what is currently Management Unit 1 consisted of only 4 "mini" clearcut units that totaled approximately 2 acres to 0.5 acre in size. This harvest on what is currently Management Unit 2 was mostly seed tree removal, with two small clearcut units and was yarded with approximately half helicopter yarding and half tractor yarding. More than half of the acreage in Management Unit 2 was included in this 1998 timber harvesting plan. About half of the acreage of Management Unit 3 was involved in the 1998 harvest and included all of the four silviculture methods mentioned above. The majority was laid out for tractor yarding with helicopter yarding being necessary for the lower, steeper slopes. It appears that all of the accessible, merchantable Douglas-fir timber areas were included in this THP. A look through THP files that we received from CALFIRE indicated that this THP was logged, completed, and stocked.

9. PRESENT TIMBER STAND DESCRIPTION and VOLUME SUMMARIES

The JTMP area is 319 total acres and is broken into three Management Units. Management Unit 1 is 89 acres consisting primarily of tanoak, madrone, Douglas-fir, and other hardwoods consisting of live oak and big-leafed maple. It is a mixed zoned parcel that is zoned forest recreation (the north 39 acres) and timber production zone (the south 50 acres). Management Unit 2 is 70 acres consisting primarily of tanoak, madrone, Douglas-fir, and with other hardwoods as well. Management Unit 3 is approximately 160 acres of tanoak, madrone, Douglas-fir, and other hardwoods. A timber cruise was conducted over the portions of the management units that are zoned TPZ and that total less than 160 acres. This includes the south 50 acres of Management Unit 1 and the entirety of Management Unit 2. Management Unit 3 is a TPZ zoned parcel that is 160 acres and thus wasn't included in the timber cruise. The north 39 acres of Unit 1 is zoned as Forest Recreation and as such was also not included in the timber cruise.

Species Composition: TPZ zoned portion of Management Unit 1 (south 50 acres): 44% Douglas-fir, 48% tanoak, 4% Pacific madrone, and 4% live oak. The average basal area of conifer is 80 square feet per acre and 86 square feet per acre of hardwood. The average age of the second growth conifer is 55 to 60 years old. Conifer diameters of trees cruised ranged from 10 to 48 inches with an average of 15.6 inches for all trees 10 inches DBH and greater. The stand structure is best described as single-tiered. Residuals left from original logging are found sparingly within the management unit. Most are located at the lower elevations, near the major watercourses and contain significant conk and other defect. The understory is generally moderate to dense and consists of conifer and hardwood regeneration, huckleberry, and fern species. There is an average of 0 to 1 snags >30" DBH and 30' tall and 0 to 1 downed logs per acre.

Management Unit #1(TPZ zoned portion – south 50 acres)	
Average conifer diameter:	15.7 inches
Average hardwood diameter:	13.5 inches
Average conifer basal area/acre:	80 square feet
Average hardwood basal area/acre:	86 square feet
Conifer volume/acre:	11,425 board feet
Hardwood volume/acre:	70.2 green tons

Species Composition: Management Unit 2: 24% Douglas-fir, 56% tanoak, 7% Pacific madrone, and 13% live oak. The average basal area of conifer is 40 square feet per acre and 125 square feet per acre of hardwood. The average age of the second growth conifer is 55 to 60 years old. Conifer diameters of trees cruised range from 10-42 inches DBH, with the exception of one 68 inch diameter Douglas-fir measured on a plot. The average DBH for all conifer trees 10 inches DBH and greater is 16.8 inches. The stand structure is best described as single-tiered. Residuals left from original logging are found sparingly within the management unit. Most are located at the lower elevations, near the major watercourses and contain significant conk and other defect. The understory is generally moderate to dense and consists of conifer and hardwood regeneration, huckleberry, and fern species. There is an average of 0 to 1 snags >30" DBH and 30' tall and 0 to 1 downed logs per acre.

Management Unit #2	
Average conifer diameter:	16.8 inches
Average hardwood diameter:	16.6 inches
Average conifer basal area/acre:	40 square feet
Average hardwood basal area/acre:	125 square feet
Conifer volume/acre:	5,708 board feet
Hardwood volume/acre:	104.6 green tons

Species Composition: Management Unit 3: In excess of 160 acres of TPZ zonsed lands and thus was not included in the timber cruise.

10. CRUISE METHODOLOGY AND VOLUME DETERMINATION

The JTMP area was sampled in July of 2016 using the system described below:

a. The timber stands were inventoried using a nested variable plot sampling system.

b. The TPZ zoned portion of Management Unit 1 and Management Unit 2 were cruised using a 6-chain grid and a BAF of 40.

c. At every plot, a prism swing was made and all trees 10 inches DBH and greater were tallied by species and measured for DBH and defect, with a subsample of heights.

d. At every plot a 1/300 acre plot was established and all trees 8 inches DBH and smaller were tallied by species and measured for DBH, height and defect.

e. The gross Scribner board foot volumes for conifers were calculated using Wensel & Krumland's board foot volume equation coefficients from the publication Volume & Taper Relationships for Redwood, Douglas-fir, & Other Conifers in California's North Coast (University of Ca., Bulletin 1907).

11. FUTURE YIELD

The projected growth estimates for the JTMP area are based upon Table 10, Volume Board Measure to the Acre (INT. 1/8" Rule) for Site Index 90, found on page 14 of *Yield, Stand and Volume Tables for Douglas fir in California, Bulletin 491.* (Francis X. Schumacher). Adjustments were made to the growth rates found in Bulletin 491 for Site Index 90 for purposes of "Dialing In" Bulletin 491 to the present JTMP area capacities. The growth rates were reduced by 40 percent to account for a natural hardwood component within the area. This occurrence of hardwoods will reduce the site occupancy of conifers relative to those stands sampled and used to determine the growth rates in Bulletin 491. The following growth rates represent the growth rates within the JTMP.

Table 1 - Developed from Yield, Stand and Volume Tables for Douglas-Fir in Callifornia (Francis X. Schumacher) Table 10.
Table illustrates volume per acre, ten year growth and associated annual growth percentages for each ten year period for Site Index 90.

age	volume/acre		ten year growth		% annual growth	
	Normal	Adjusted	Normal	Adjusted	Normal	Adjusted
0	0					
10	1000	600	1000	600		
20	4650	2790	3650	2190	36.50	21.9
30	12405	7443	7755	4653	16.68	10.0
40	23850	14310	11445	6867	9.23	5.5
50	35100	21060	11250	6750	4.72	2.8
60	45600	27360	10500	6300	2.99	1.8
70	55000	33000	9400	5640	2.06	1.2

The tables below illustrates subsequent growth *without* harvest for the next 30 years.

Management Unit 1	2016 (2.8% 10-yr. growth)		2026 (1.8% 10-yr. growth)		2036 (1.2% 10-yr. growth)		2046	
Conifer Growth (50 AC.)	Total Volume (BF)	Vol/Acre (BF)	Total Volume (BF)	Vol/Acre (BF)	Total Volume (BF)	Vol/Acre (BF)	Total Volume (BF)	Vol/Acre (BF)
	571,250	11,425	731,200	14,624	862,816	17,256	966,354	19,327
Management Unit 2	2016 (2.8% 10-yr. growth)		2026 (1.8% 10-yr. growth)		2036 (1.2% 10-yr. growth)		2046	
Conifer Growth (70 AC.)	Total Volume (BF)	Vol/Acre (BF)	Total Volume (BF)	Vol/Acre (BF)	Total Volume (BF)	Vol/Acre (BF)	Total Volume (BF)	Vol/Acre (BF)
	399,560	5,708	511,437	7,306	603,496	8,621	675,916	9,656

12. SILVICULTURAL RECOMMENDATIONS

The long-term management objective is to increase the conifer component and decrease site occupancy of hardwoods in order to maximize the stand density of Douglas-fir within the JTMP area. The applicable silvicultural prescriptions will be based on the existing stand type and management objective of the landowner. The timber stands located within the JTMP area are mainly stands of 2nd growth and mature stands of hardwoods mixed with 2nd growth Douglas-fir trees and widely scattered residual Douglas-fir. Scattered residual Douglas-fir remaining on the parcels are usually located near a watercourse or was left due to excessive defect in the 1998 timber harvest plan.

The JTMP area could initially be managed using a mix of the rehabilitation along with intermediate silviculture methods. The rehabilitation prescription could be prescribed over the areas where hardwood component is the highest. Intermediate treatments could be appropriate in the future over some of the areas that were harvested and stocked in the last timber harvest plan. Although hardwoods are present in much of this area also.

Rehabilitation is designed to remove the existing hardwood component and replace it with conifer species. Following harvest of the hardwood stands, the logged areas should be site prepped and planted with conifer seedlings to a minimum of 435 seedlings per acre. Following planting, an intermediate hardwood treatment such as "hack and squirt" may need to be implemented in order to keep hardwoods from regenerating the site. The next commercial harvest entry will likely not occur for 30 to 40 years later. When the rehabilitated stands reach a stand age of 30 to 40 years old, they can be commercially thinned to remove defect and mortality while establishing ideal spacing to promote growth on the residual stand. Following commercial thinning the stand should be shifted into a unevenaged stand structure using selection or group selection prescriptions. The aforementioned silvicultural recommendations are for permitted THP/NTMP projects. However, there are several things that individual landowners can do to enhance their timber stands in between commercial operations. These practices on this JTMP area could include precommercial thinning. Precommercial thinning should focus on removing competing vegetation, in this case, tanoak regeneration from around conifer regeneration. Additionally, pruning of limbs in timber stands can be undertaken on a small management unit scale and will enhance the quality of wood while allowing sunlight to reach the forest floor to promote regeneration in the understory. It is also recommended that inter-planting be encouraged within the management units to supplement the existing conifer and increase Maximum Sustained Production. These types of projects would most likely be limited to the ridge and road accessible areas, and constrained by the steep slopes associated with the major watercourses.

Intermediate treatments such as commercial thinning could take place in future over some of the areas harvested and stocked approximately 16 years ago. This would most likely be limited to small patches where conifer stocking is high and the ground accessible to ground based equipment. This would probably be appropriate approximately 30 years from now. Although stocked, these areas located within the last harvest area do still contain a heavy hardwood component.

In order to maximize potential growth, it is recommended to harvest trees that have mechanical damage or disease. Removal of as many hardwoods as feasible will provide growing space for conifers from natural and artificial regeneration. Site preparation by mechanical means may be undertaken where slopes allow, or by broadcast burning or "yum" yarding on the steeper slopes. Planted areas should be monitored to determine the need for intermediate treatments such as browse protection, inter-planting, and pre-commercial thinning.

Far into the future, a stand that could be selectively harvested could be attained on at least a portion of the JTMP area. A benefit of unevenaged management is that it better mitigates impacts from timber harvesting on various other forest resource values. The timbered portions of the JTMP area provides habitat for: downstream anadromous salmonids (shading, large woody debris recruitment, slope stability), spotted owls, and various other species that frequent the forest. The use of selective harvesting, over a series of successive entries, provides for a relatively even distribution of trees across the timbered portions of the parcels. Consequently, there are always trees growing of various sizes on the landscape capable of providing shade to streams, stability to slopes, and habitat for wildlife.

13. CONSERVATION AND PROTECTION MEASURES

Roads: The existing road system is in good condition and provides good timber harvesting access to both management units for future timber operations. The road system was used for logging access during the last timber harvest in 1999 and 2000. Future timber harvesting will require that the roads and crossings be maintained to present standards, which in part, are enforced by the Forest Practice Act (CALFIRE), Clean Water Act (WQ), and the Endangered Species Act (CDFW & NMFS). The landowner is encouraged to consult with an RPF prior to conducting any road maintenance activities that are not associated with a permitted timber operation.

Soil Conservation: Soil is the basic resource that allows a forest to grow, and measures should be taken now and in the future to protect this resource. Soil erosion potential is increased with concentration of runoff on bare mineral soil. Dispersion of water from roads and landings are the key to limiting erosion after logging. The landowner is encouraged to maintain all existing drainage structures and facilities on truck and skid roads. Most of these erosion control structures and facilities observed are adequately functioning, but nevertheless should still be periodically checked prior to the winter period to ensure that they are functional. Future timber harvesting will likely re-use these existing truck roads and skid roads, and their maintenance will be important for successive harvests and future management activities.

Fire Risk: The RPF did not observe any stand conditions, such as overcrowding or high concentrations of surface fuels, which would make the JTMP area at high risk for a forest fire. However, it is widely recognized that forest management activities can increase the risk and severity of intense forest fires. Commercial logging generally removes the least flammable portion of trees (their main stems or trunks) while leaving behind their most flammable portions (their needles and limbs) directly on the ground. Untreated logging slash can adversely affect fire behavior for up to 30 years following the logging operations. Commercial logging reduces the "over story" tree canopy, which moderates the "microclimate" of the forest floor. This reduction of the tree canopy exposes the forest floor to increased sun and wind, causing increased surface temperatures and decreased relative humidity. This in turn causes surface fuels to be hotter and drier, resulting in faster rates of fire spread, greater flame lengths and fire-line intensities, and more erratic shifts in the speed and direction of fires. Small diameter surface fuels are the primary carriers of fire. Current fire-spread models such as the BEHAVE program do not even consider fuels greater than three inches in diameter, because it is mainly the fine-sized surface fuels that allow the fire to spread.

Because forest management and timber operations have the potential for increasing the risk of fire; it is important that all timber harvest operations be conducted in compliance with State and local fire rules and regulations. For the residences located on the property, the Forest Practice Rules require hazard reduction (treating logging slash) within 200 feet of a residence. In addition, when the option of burning piles or concentrations of slash is chosen to meet the slash treatment requirements as specified in these rules, such burning shall be done as follows: (a) Piles and concentrations shall be sufficiently free of soil and other noncombustible material for effective burning. (b) The piles and concentrations shall be burned at a safe time during the first wet fall or winter weather or other safe period following piling and according to laws and regulations. Piles and concentrations that fail to burn sufficiently to remove the fire hazard shall be further treated to eliminate that hazard. All necessary precautions shall be taken to confine such burning to the piled slash.

Wildlife: The JTMP area contains habitat for numerous plant and animal species. Timber operations have the potential to directly or indirectly impact fish, plants, and wildlife species. 14CCR 898.2(d) states that one of the Special Conditions under which the Director can disapprove a THP or an NTMP is when "Implementation of the plan as proposed would result in either a "taking" or finding of jeopardy of wildlife species listed as rare, threatened or endangered by the Fish and Game Commission or Fish and Wildlife Service, or would cause significant, long-term damage to listed species. Consequently, any future timber harvesting that has the potential to impact wildlife will require an impact assessment, which may include consultation with the Department of Fish and Wildlife, US Fish and Wildlife Service and National Marine Fisheries Service.

Pest and Disease: Phytophthora ramorum (P. ramorum), is the pathogen that causes the disease known as Sudden Oak Death (SOD). Sudden Oak Death is a new and virulent disease affecting hardwood forests in coastal California. The pathogen, *Phytophthora ramorum*, has reached epidemic levels in several California forests. The pathogen also colonizes the foliage of several other overstory and understory hosts without killing them. Phytophthora ramorum, has been found in Humboldt County. The OakMapper (http://www.oakmapper.org/) website shows the closest location of SOD as being over 10 miles southeast of the JTMP area. Due to the presence of SOD in Humboldt County, the JTMP area is assumed to be infected with SOD. Future THP and NTMPs are required to incorporate protection measures designed to mitigate potential negative effects of SOD. Mitigation & management recommendations are taken from Sudden Oak Death Guidelines for Forestry at http://nature.berkeley.edu/comtf/pdf/ForestryGuideNov2006.pdf.

List of known host species: *Acer macrophyllum* (big-leaf maple), *Acer pseudoplatanus* (planetree maple), *Adiantum aleuticum* (western maidenhair fern), *Adiantum jordanii* (California maidenhair fern), *Aesculus californica* (California buckeye), *Aesculus hippocastanum* (horse chestnut), *Arbutus menziesii* (madrone), *Arctostaphylos Manzanita* (manzanita), *Calluna vulgaris* (Scotch heather), *Camellia* (camellia), *Castanea sativa* (sweet chestnut), *Fagus sylvatica* (European beech), *Frangula californica* (California coffeeberry), *Frangula purshiana* (cascara), *Fraxinus excelsior* (European ash), *Griselinia littoralis* (griselinia), *Hamamelis virginiana* (witch hazel), *Heteromeles arbutifolia* (toyon), *Kalmia* (mountain laurel), *Lithocarpus densiflorus* (tanoak), *Lonicera hispidula* (California honeysuckle), *Laurus nobilis* (bay laurel), *Maianthemum racemosum* (false Solomon's seal), *Michelia doltsopa* (michelia), *Parrotia persica* (Persian ironwood), *Photinia fraseri* (red tip photinia), *Pieris spp.* (Andromeda), *Pseudotsuga menziesii* (Douglas-fir), *Quercus agrifolia* (coast live oak), *Quercus cerris* (European turkey oak), *Quercus chrysolepis* (canyon live oak), *Quercus falcata* (southern red oak), *Quercus ilex* (Holm oak), *Quercus kelloggii* (California black oak), *Quercus parvula* var. *shrevei* (Shreve's oak), *Rhododendron* (rhododendron), *Rosa gymnocarpa* (wood rose), *Salix caprea* (goat willow), *Sequoia sempervirens* (redwood), *Syringa vulgaris* (lilac), *Taxus baccata* (European yew), *Trientalis latifolia* (western starflower), *Umbellularia*

californica (pepperwood), *Vaccinium ovatum* (huckleberry), *Viburnum* (all species) (http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/usdaprlist.pdf)

Plants: The JTMP area contains habitat for numerous special status plants (rare, threatened and endangered plants) and plant communities. Special status plants are limited to those that have been listed by state and federal agencies but include any plants that, based on all available data, can be shown to be rare, threatened, or endangered. Rare plant communities are those communities that are of highly limited distribution. These communities may or may not contain special status plants. The *California Natural Diversity Database's List of California Terrestrial Natural Communities* is used as a guide to the names and status of communities. Future timber operations will likely require botanical surveys utilizing *The Department of Fish and Game's (CDFW) Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities.*

Fish: The JTMP area contains unnamed Class II tributaries to the Mattole River. The far eastern slopes of the JTMP area drain towards a Class I watercourse known as Dry Creek which is also a tributary to the Mattole River. The Mattole River drains into the Pacific Ocean. In August 2002, the State Fish & Game Commission found that coho salmon from Punta Gorda to the Oregon border warranted listing as threatened. In March 2005 coho salmon were listed under CESA as threatened north of Punta Gorda to the Oregon border. The Board of Forestry has approved rule language for the Forest Practice Rules that will enhance protection of anadromous salmonids and their habitat. The new rule language provides a regulatory procedure for the issuance of incidental take permits for coho salmon that is integrated with the Forest Practice Act and the Forest Practice Rules. Without such an integrated approach, in addition to applying to the Cal Fire for approval of timber harvesting plans, timberland owners would have to engage in a lengthy, separate process for obtaining incidental take permits for coho salmon from CDFW for any timber operations and activities that would result in take of the species. This would involve separate environmental review processes and related costs to both the permit applicant & CDFW.

Water Quality: The JTMP area is located in the greater Mattole River watershed. The Environmental Protection Agency (EPA) pursuant to the federal Clean Water Act section 303(d) has listed the Mattole River as an "impaired" waterbody. The listed pollutants are excessive sedimentation and excessive temperatures. The basis for listing cited by the EPA is impairment due to roads, timber harvesting, mining, and natural causes. The EPA contends that the factors listed above have resulted in impairment of fisheries and aquatic habitat. The mechanisms for impairment are large scale and are associated with numerous past and present activities, both natural and anthropogenic, such as development, roads, timber harvesting, mining, landsliding, flooding, and point source pollution. Given the broad pattern of impacting activities, the contribution of any given forest management activity or timber operation toward the impairment cited by the EPA for the Mattole River, appears to be minor. However, the sum of management and harvest impacts over time may exceed an as yet unidentified and unquantified threshold and become a significant mechanism of impairment in the future. It is this potential for a cumulative adverse impact, that has led to the adoption of specific forest practice regulations by the Board of Forestry, and appropriate mitigation measures in THP's/NTMP's, designed to lessen the likelihood of impact.

The Forest Practice Rules focus on the protection of watercourses through the installation and maintenance of erosion controls and silvicultural restrictions resulting in the retention of vegetation across a landscape over time. These practices represent the best currently available techniques for limiting possible project associated mechanisms of impairment.

The THP process, which is implemented by Cal Fire, may trigger one or more permits or other entitlements to carry out the project and ensure the protection of water quality. The range of permits needed depends on the type of action. There are also numerous federal requirements that only apply where an action is "federalized" due to funding or the need for a federal permit. All potential permits or entitlements are summarized below.

- A Section 1602 or 1611 Streambed Alteration Agreement is required through the California Department of Fish & Wildlife when an alteration to a bed, channel, or bank of a stream will occur, such as a crossing installation.
- The California Endangered Species Act (CESA) requires consultations with the California Department of Fish and Wildlife to determine if an activity is likely to affect or result in the take of a plant or animal (fish) listed by the State as threatened or endangered. Similar to CESA, the Federal Endangered Species Act (FESA) requires formal or informal consultation with the US Fish and Wildlife Service or the NOAA Fisheries where it is likely that the project could affect federally listed threatened or endangered species.
- Section 401 of the federal Clean Water Act requires that State water quality standards not be violated by the discharge of fill or dredged material into "Waters of the United States." The owner or operator of any facility or activity that discharges, or proposes to discharge, waste that may affect groundwater quality, or from which waste may be discharged in a diffused manner (for example, erosion from soil disturbance), must first obtain waste discharge requirements (WDRs) from the Regional Water Quality Control Board (RWQCB) pursuant to

Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Act. Some THP activities in the North Coast Region are covered by a categorical waiver.

Archaeology: The project area lies within an area known to be inhabited in the past by local Native American tribes. Archaeological resources are one of the many resources considered significant to California. Native American cultural resources are commonly situated on ridgelines and associated spurs; saddles; midslope terraces; at vegetative ecotones; at confluences of drainages, and areas adjacent to seasonal and perennial watercourses including springs. Given the presence of many of the aforementioned features within the JTMP area it is likely that resources associated with Native Americans may be found within the project area. In addition to Native American resources the FPR also require surveying for the presence of historic resources. The project area had been harvested in the late 1950s. Tractors were used primarily at this time. In light of this, one could expect to find artifacts associated with this sort of operation, such as discarded wire rope chokers, tractor parts, oil cans, fuel containers, wedges, drag saw parts, spring boards, saw blades, axes, soda and liquor bottles, or canteens. Some of these types of artifacts have been found on the on the property within the JTMP. Regardless, the FPR require that these resources be surveyed for, disclosed when found and protected from timber operations as appropriate. Currently, these surveys can be conducted by trained resource personnel (Trained RPFs), however in the future these resources may need to be surveyed for by a professional archaeologist.

14. MANAGEMENT PLAN UPDATES

It is highly advised that the Joint Timber Management Guide be updated on a periodic basis, to revise growth predictions and specific changes to the timberland. Updates should include recommendations to improve the current stand conditions such as commercial thinning or salvage operations, and treatments for pre-commercial stands such as pre-commercial thinning and brush control. The forest landowners are advised to retain professional guidance concerning forest management decisions to take advantage of the best information on current practices and markets. Meeting the objectives of the landowners is a necessary function of these updates and their participation is encouraged.

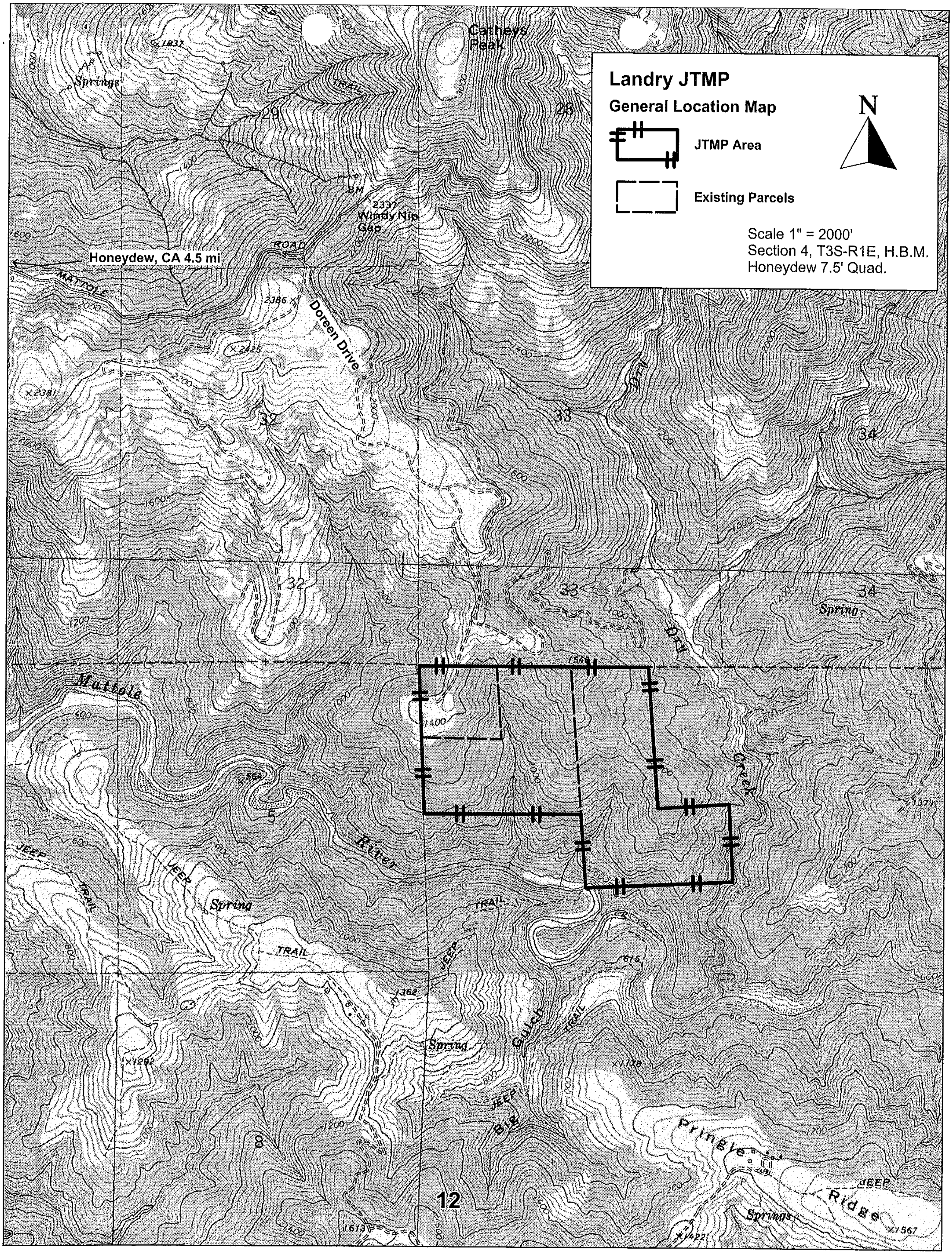
15. MANAGEMENT COST

Cost that will be incurred for management activities could include but are not necessarily limited to the following: road maintenance, surveying, forest protection, tree planting, timber stand improvement and related harvesting costs. These costs will not necessarily coincide with revenues received from harvests. Landowners should be prepared for these costs that are necessary to maintain a productive, healthy forest ecosystem.

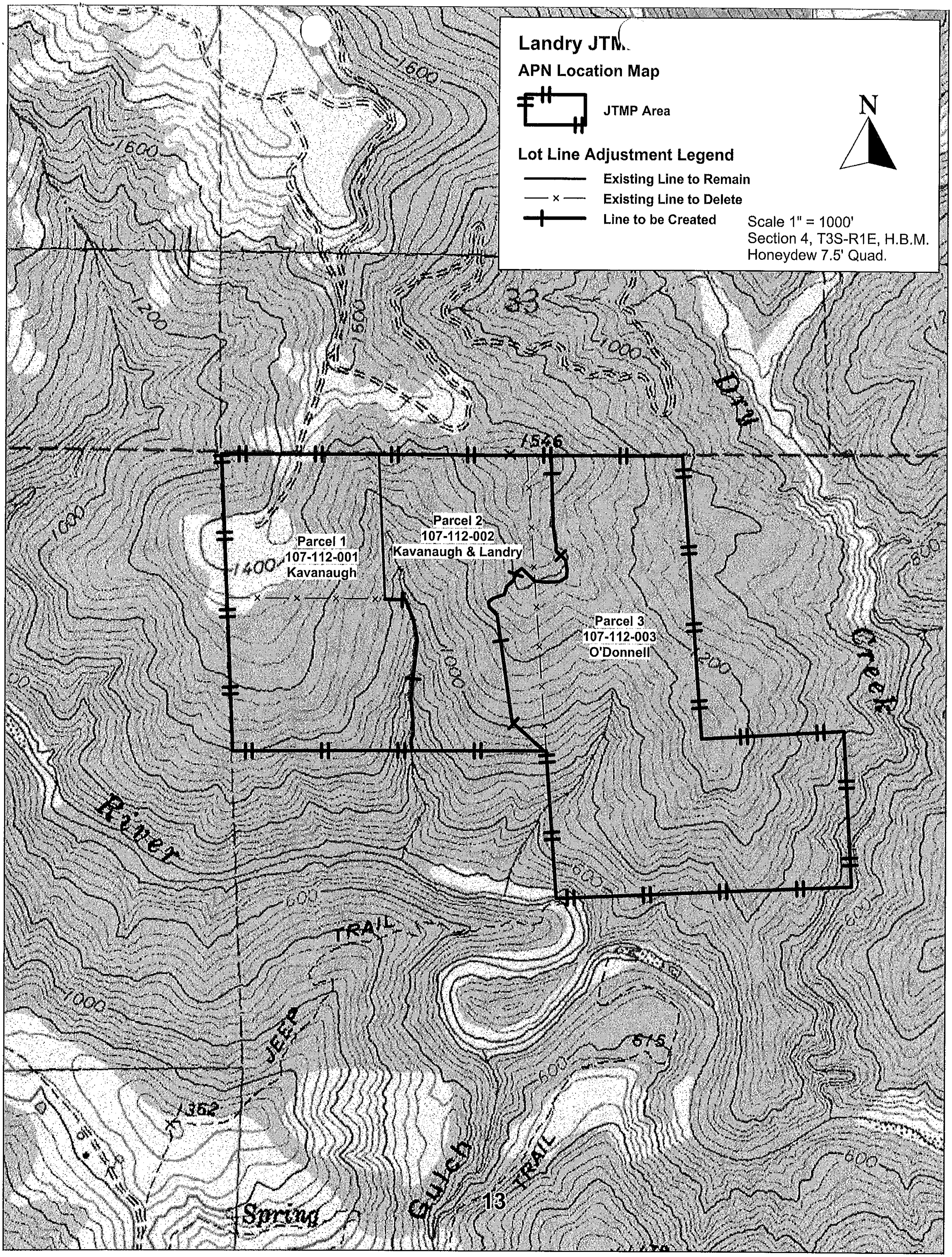
16. LEGAL REQUIRMENTS

The landowner should be aware that harvest activities will require a State approved Timber Harvest Plan (THP) or equivalent document and that all timber operations are subject to regulations included in the Forest Practice Act and the current California Forest Practice Rules. Other permits that also may be required are Department of Fish and Game Stream Alteration Agreement, US Fish and Wildlife Service Letter of Technical Assistance for impacts that may impact the Northern Spotted Owl and the Marbled Murrelet, and Water Quality Waste Discharge Permit.

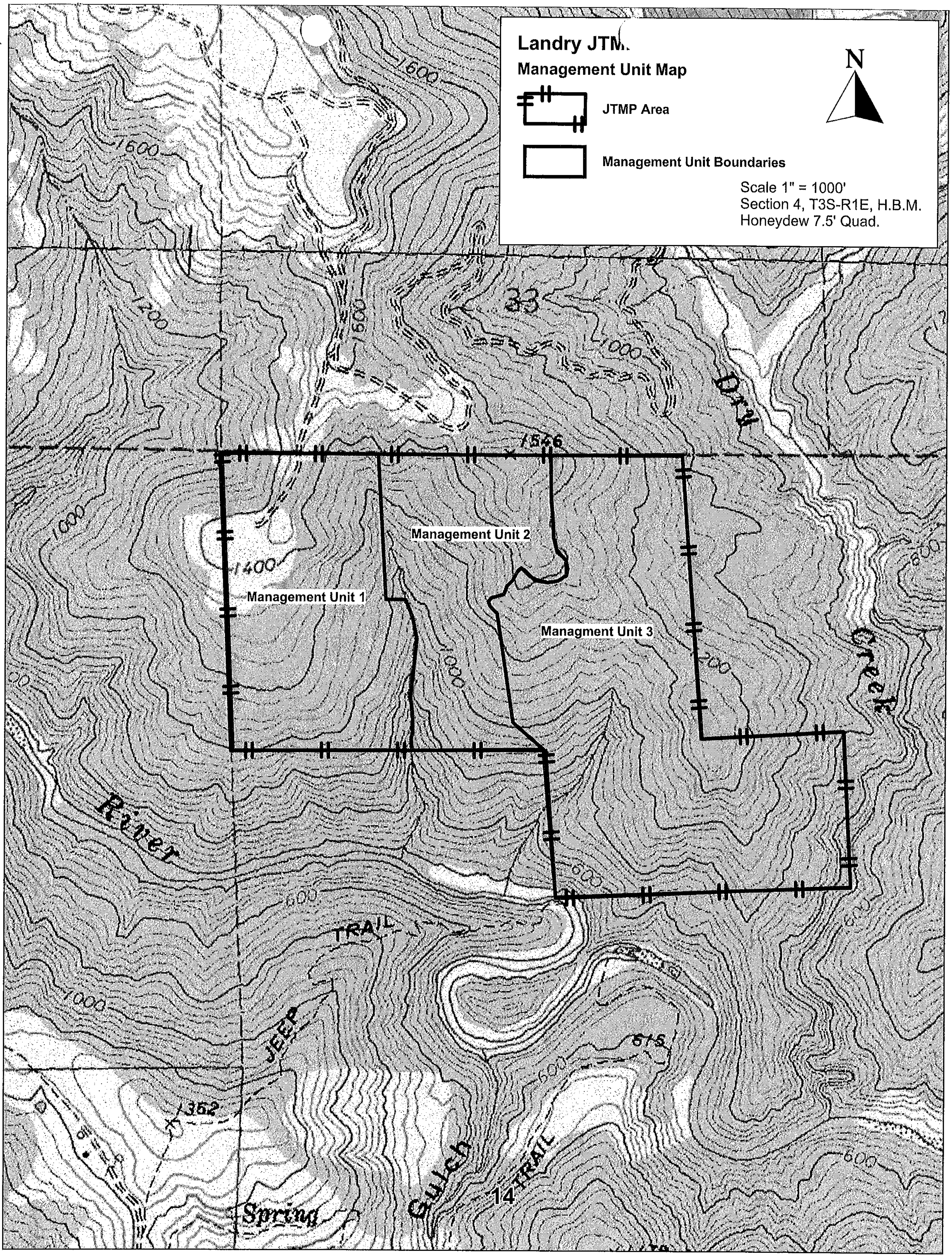
JTMP MAPS

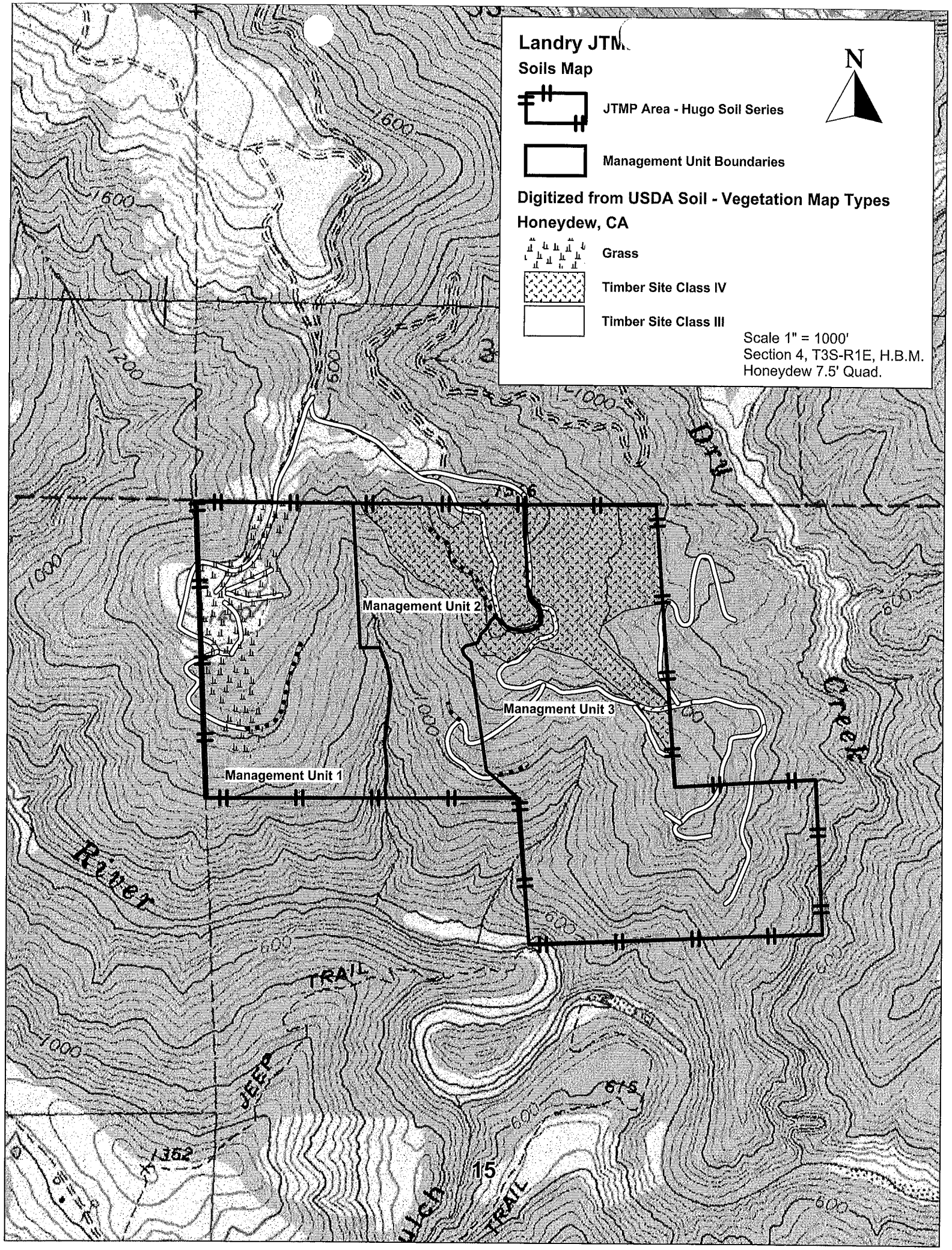


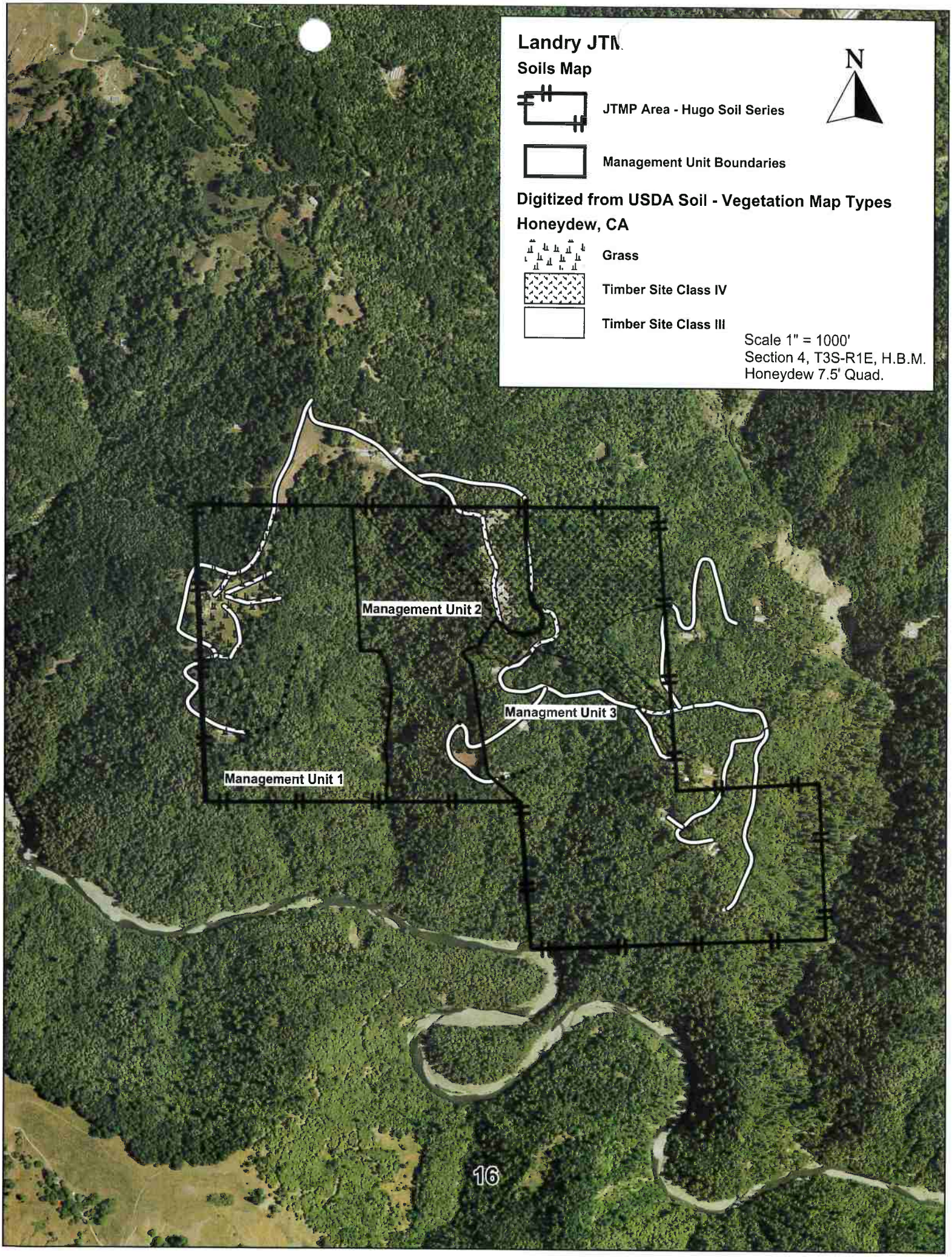
Landry JTMP
General Location Map
JTMP Area
Existing Parcels
N
Scale 1" = 2000'
Section 4, T3S-R1E, H.B.M.
Honeydew 7.5' Quad.
Honeydew, CA 4.5 mi
Catheys Peak
Windy Nip Gap
Doreen Drive
Mattole River
Dry Creek
Big Gulch
Pringle Ridge
Spring
Springs
TRAIL
JEEP
ROAD

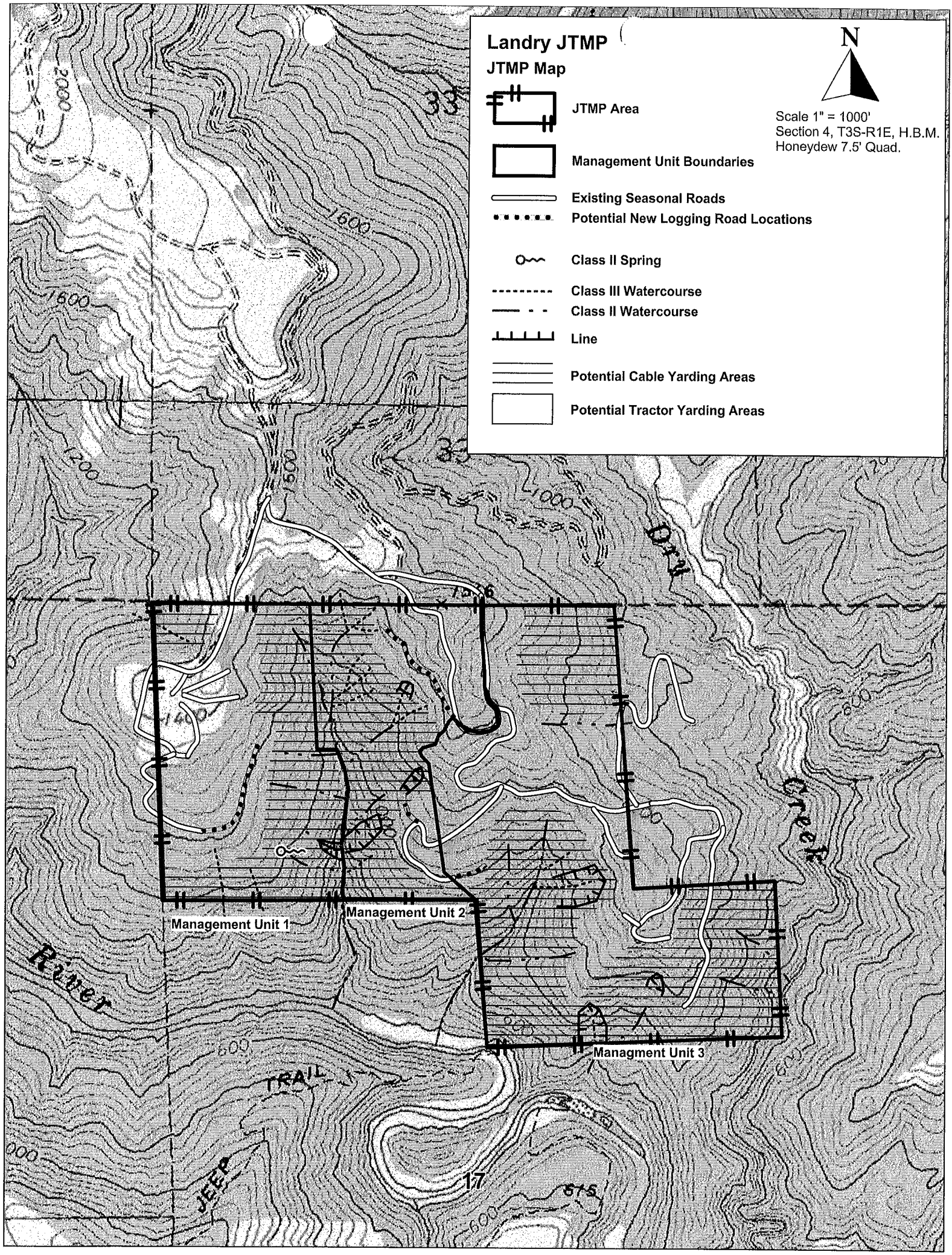


Landry JTM
APN Location Map
JTMP Area
Lot Line Adjustment Legend
Existing Line to Remain
Existing Line to Delete
Line to be Created
Scale 1" = 1000'
Section 4, T3S-R1E, H.B.M.
Honeydew 7.5' Quad.
N
Parcel 1
107-112-001
Kavanaugh
Parcel 2
107-112-002
Kavanaugh & Landry
Parcel 3
107-112-003
O'Donnell
River
Dry Creek
TRAIL
JEEP
Spring
Gulch
1546
1352
33
13


Landry JTM.
Management Unit Map
JTMP Area
Management Unit Boundaries
Scale 1" = 1000'
Section 4, T3S-R1E, H.B.M.
Honeydew 7.5' Quad.
N
Management Unit 1
Management Unit 2
Managment Unit 3
River
Dry
Creek
JEEP
TRAIL
Spring
Gulch
TRAIL
33
14
1546
1352


Landry JTM
Soils Map
N
JTMP Area - Hugo Soil Series
Management Unit Boundaries
Digitized from USDA Soil - Vegetation Map Types
Honeydew, CA
Grass
Timber Site Class IV
Timber Site Class III
Scale 1" = 1000'
Section 4, T3S-R1E, H.B.M.
Honeydew 7.5' Quad.
Management Unit 1
Management Unit 2
Managment Unit 3
Creek
River
TRAIL
JEEP
TRAIL
15


Landry JTM
Soils Map
N
JTMP Area - Hugo Soil Series
Management Unit Boundaries
Digitized from USDA Soil - Vegetation Map Types
Honeydew, CA
Grass
Timber Site Class IV
Timber Site Class III
Scale 1" = 1000'
Section 4, T3S-R1E, H.B.M.
Honeydew 7.5' Quad.
Management Unit 2
Managment Unit 3
Management Unit 1


Landry JTMP
JTMP Map
JTMP Area
Management Unit Boundaries
Existing Seasonal Roads
Potential New Logging Road Locations
Class II Spring
Class III Watercourse
Class II Watercourse
Line
Potential Cable Yarding Areas
Potential Tractor Yarding Areas
N
Scale 1" = 1000'
Section 4, T3S-R1E, H.B.M.
Honeydew 7.5' Quad.
Management Unit 1
Management Unit 2
Managment Unit 3
Creek
River
TRAIL
JEEP
17

CRUISE REPORTS

Stand Number: 1

Area (acres): 50.0

#Points: 13

Product Group / Product Species--Volume1/2 Tables	DBH *(inches)*	# Trees	Volume 1	Volume 2	Basal Area	Mean Merch. Height
Dimensional Wood						
Sawtimber		#	*Board Feet*		*sq. ft.*	***
Douglas-fir--DF74/						
	10.0	11.3	507.7	0.0	6.2	0.0
	12.0	23.5	1,849.1	0.0	18.5	0.0
	14.0	2.9	354.0	0.0	3.1	0.0
	16.0	11.0	2,019.2	0.0	15.4	0.0
	18.0	5.2	1,347.7	0.0	9.2	0.0
	20.0	1.4	514.8	0.0	3.1	0.0
	24.0	1.0	585.7	0.0	3.1	0.0
	26.0	0.8	621.7	0.0	3.1	0.0
	28.0	1.4	1,147.0	0.0	6.2	0.0
	36.0	0.4	632.0	0.0	3.1	0.0
	40.0	0.4	485.9	0.0	3.1	0.0
	42.0	0.3	782.3	0.0	3.1	0.0
	48.0	0.2	577.6	0.0	3.1	0.0
QuadMnDBH/MnHt/Subtotals	15.6	59.9	11,424.8	0.0	80.0	0.0
Product Group Total	**15.6**	**59.9**	**11,424.8**	**0.0**	**80.0**	**0.0**

Stand Number: 1

Area (acres): 50.0

#Points: 13

Product Group / Product / Species--Volume1/2 Tables	DBH (inches)	# Trees	Volume 1	Volume 2	Basal Area	Mean Merch. Height
Pulpwood						
Chips		#	*Tons*		*sq. ft.*	***
Tanoak--RGO Tons by Feet/						
	10.0	39.5	16.2	0.0	21.5	0.0
	12.0	7.8	4.8	0.0	6.2	0.0
	14.0	2.9	2.0	0.0	3.1	0.0
	16.0	4.4	5.2	0.0	6.2	0.0
	20.0	4.2	7.5	0.0	9.2	0.0
	22.0	2.3	5.4	0.0	6.2	0.0
	24.0	2.0	6.4	0.0	6.2	0.0
	26.0	1.7	6.8	0.0	6.2	0.0
QuadMnDBH/MnHt/Subtotals	13.5	64.8	54.3	0.0	64.6	0.0
Madrone--RGO Tons by Feet/						
	12.0	3.9	1.0	0.0	3.1	0.0
	18.0	1.7	1.0	0.0	3.1	0.0
QuadMnDBH/MnHt/Subtotals	14.1	5.7	2.0	0.0	6.2	0.0
Live Oak--RGO Tons by Feet/						
	16.0	2.2	2.7	0.0	3.1	0.0
	22.0	1.2	2.7	0.0	3.1	0.0
	24.0	1.0	2.9	0.0	3.1	0.0
	26.0	0.8	2.7	0.0	3.1	0.0
	30.0	0.6	2.9	0.0	3.1	0.0
QuadMnDBH/MnHt/Subtotals	22.0	5.8	13.9	0.0	15.4	0.0
Product Group Total	**14.4**	**76.3**	**70.2**	**0.0**	**86.2**	**0.0**

Stand Number: 1

Area (acres): 50.0

#Points: 13

Product Group / Product Species--Volume1/2 Tables	DBH *(inches)*	# Trees	Volume 1	Volume 2	Basal Area	Mean Merch. Height
Biomass						
Regeneration		#	*Basal Area*		*sq. ft.*	***
Douglas-fir--REGEN/						
	1.0	253.8	1.4	0.0	1.4	0.0
	2.0	161.5	3.5	0.0	3.5	0.0
	3.0	46.2	2.3	0.0	2.3	0.0
	4.0	115.4	10.1	0.0	10.1	0.0
QuadMnDBH/MnHt/Subtotals	2.3	576.9	17.2	0.0	17.2	0.0
Tanoak--REGEN/						
	1.0	553.8	3.0	0.0	3.0	0.0
	2.0	23.1	0.5	0.0	0.5	0.0
	6.0	23.1	4.5	0.0	4.5	0.0
	8.0	23.1	8.1	0.0	8.1	0.0
QuadMnDBH/MnHt/Subtotals	2.2	623.1	16.1	0.0	16.1	0.0
Madrone--REGEN/						
	6.0	23.1	4.5	0.0	4.5	0.0
QuadMnDBH/MnHt/Subtotals	6.0	23.1	4.5	0.0	4.5	0.0
Live Oak--REGEN/						
	1.0	92.3	0.5	0.0	0.5	0.0
QuadMnDBH/MnHt/Subtotals	1.0	92.3	0.5	0.0	0.5	0.0
Product Group Total	**2.3**	**1,315.4**	**38.4**	**0.0**	**38.4**	**0.0**
Stand Total		**1,451.6**			**204.5**	
Stand Means	**5.1**					
Stand Means	**4.9**					

Stand Number: 2

Area (acres): 70.0

#Points: 17

Product Group / Product / Species--Volume1/2 Tables	DBH (inches)	# Trees	Volume 1	Volume 2	Basal Area	Mean Merch. Height
Dimensional Wood						
Sawtimber		#	*Board Feet*		*sq. ft.*	***
Douglas-fir--DF74/						
	10.0	4.3	94.9	0.0	2.4	0.0
	12.0	9.0	567.7	0.0	7.1	0.0
	14.0	4.4	550.3	0.0	4.7	0.0
	16.0	1.7	222.9	0.0	2.4	0.0
	18.0	2.7	673.5	0.0	4.7	0.0
	20.0	1.1	393.7	0.0	2.4	0.0
	24.0	0.7	397.0	0.0	2.4	0.0
	26.0	0.6	475.4	0.0	2.4	0.0
	28.0	0.6	614.1	0.0	2.4	0.0
	40.0	0.3	596.7	0.0	2.4	0.0
	42.0	0.5	828.4	0.0	4.7	0.0
	68.0	0.1	293.0	0.0	2.4	0.0
QuadMnDBH/MnHt/Subtotals	16.8	25.9	5,707.6	0.0	40.0	0.0
Product Group Total	**16.8**	**25.9**	**5,707.6**	**0.0**	**40.0**	**0.0**

22

Stand Number: 2

Area (acres): 70.0

#Points: 17

Product Group / Product / Species--Volume1/2 Tables	DBH (inches)	# Trees	Volume 1	Volume 2	Basal Area	Mean Merch. Height
Pulpwood						
Chips		#	*Tons*		*sq. ft.*	***
Tanoak--RGO Tons by Feet/						
	10.0	12.9	3.4	0.0	7.1	0.0
	12.0	15.0	7.4	0.0	11.8	0.0
	14.0	6.6	5.4	0.0	7.1	0.0
	16.0	8.4	9.4	0.0	11.8	0.0
	18.0	8.0	13.0	0.0	14.1	0.0
	20.0	4.3	9.5	0.0	9.4	0.0
	22.0	1.8	4.6	0.0	4.7	0.0
	24.0	0.7	2.7	0.0	2.4	0.0
	26.0	1.9	8.2	0.0	7.1	0.0
	28.0	1.1	6.0	0.0	4.7	0.0
	32.0	0.4	2.9	0.0	2.4	0.0
	40.0	0.3	2.5	0.0	2.4	0.0
QuadMnDBH/MnHt/Subtotals	15.9	61.5	75.0	0.0	84.7	0.0
Madrone--RGO Tons by Feet/						
	14.0	2.2	0.8	0.0	2.4	0.0
	16.0	1.7	1.0	0.0	2.4	0.0
	22.0	0.9	1.7	0.0	2.4	0.0
	24.0	0.7	1.4	0.0	2.4	0.0
	26.0	0.6	2.2	0.0	2.4	0.0
	28.0	0.6	1.7	0.0	2.4	0.0
	30.0	0.5	2.4	0.0	2.4	0.0
	32.0	0.4	2.6	0.0	2.4	0.0
	40.0	0.5	3.1	0.0	4.7	0.0
QuadMnDBH/MnHt/Subtotals	23.0	8.2	17.0	0.0	23.5	0.0
Live Oak--RGO Tons by Feet/						
	10.0	4.3	1.6	0.0	2.4	0.0
	12.0	3.0	1.8	0.0	2.4	0.0
	14.0	2.2	1.6	0.0	2.4	0.0
	18.0	1.3	1.4	0.0	2.4	0.0
	20.0	2.2	3.9	0.0	4.7	0.0
	26.0	0.6	2.2	0.0	2.4	0.0
QuadMnDBH/MnHt/Subtotals	14.9	13.6	12.6	0.0	16.5	0.0
Product Group Total	**16.6**	**83.3**	**104.6**	**0.0**	**124.7**	**0.0**

Stand Number: 2

Area (acres): 70.0

#Points: 17

Product Group / Product Species--Volume1/2 Tables	DBH *(inches)*	# Trees	Volume 1	Volume 2	Basal Area	Mean Merch. Height
Biomass						
Regeneration		#	*Basal Area*		*sq. ft.*	***
Douglas-fir--REGEN/						
	1.0	52.9	0.3	0.0	0.3	0.0
	2.0	35.3	0.8	0.0	0.8	0.0
	4.0	17.6	1.5	0.0	1.5	0.0
	6.0	52.9	10.4	0.0	10.4	0.0
QuadMnDBH/MnHt/Subtotals	3.9	158.8	13.0	0.0	13.0	0.0
Tanoak--REGEN/						
	1.0	741.2	4.0	0.0	4.0	0.0
	2.0	264.7	5.8	0.0	5.8	0.0
	6.0	35.3	6.9	0.0	6.9	0.0
QuadMnDBH/MnHt/Subtotals	1.7	1,041.2	16.7	0.0	16.7	0.0
Madrone--REGEN/						
	1.0	70.6	0.4	0.0	0.4	0.0
QuadMnDBH/MnHt/Subtotals	1.0	70.6	0.4	0.0	0.4	0.0
Live Oak--REGEN/						
	1.0	105.9	0.6	0.0	0.6	0.0
QuadMnDBH/MnHt/Subtotals	1.0	105.9	0.6	0.0	0.6	0.0
Product Group Total	**2.0**	**1,376.5**	**30.7**	**0.0**	**30.7**	**0.0**
Stand Total		**1,485.7**			**195.4**	
Stand Means	**5.1**					
Stand Means	**4.9**					

Stand Number: 1
Stand ID:

Site Index: 70.00
Points: 13

Area (acres): 50.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Dimensional Wood -- 66% CI						
Sawtimber		*Board Feet*				
Douglas-fir	7,842.89	11,424.78	15,006.67	3,613.89	31.4	114.1
Overall	7,842.89	11,424.78	15,006.67	3,613.89	31.4	114.1
Pulpwood -- 66% CI						
Chips		*Tons*				
Tanoak	35.06	54.29	73.52	19.40	35.4	128.9
Madrone	0.66	2.02	3.38	1.37	67.1	244.1
Live Oak	5.29	13.88	22.47	8.66	61.9	225.1
Overall	45.58	70.19	94.80	24.83	35.1	127.5
Biomass -- 66% CI						
Regeneration		*Basal Area*				
Douglas-fir	11.34	17.24	23.15	5.96	34.3	124.6
Tanoak	3.63	16.11	28.60	12.60	77.5	281.9
Madrone	0.04	4.53	9.02	4.53	99.1	360.6
Live Oak	0.00	0.50	1.00	0.50	99.1	360.6
Overall	25.99	38.39	50.78	12.51	32.3	117.5
All Product Groups		11,533.35				

Stand Number: 2
Stand ID:

Site Index: 70.00
Points: 17

Area (acres): 70.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Dimensional Wood -- 66% CI						
Sawtimber		*Board Feet*				
Douglas-fir	3,910.84	5,707.59	7,504.35	1,831.47	31.5	132.3
Overall	3,910.84	5,707.59	7,504.35	1,831.47	31.5	132.3

Stand Number: 2
Stand ID:

Site Index: 70.00
Points: 17

Area (acres): 70.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Pulpwood -- 66% CI						
Chips		---------- *Tons* ----------				
Tanoak	56.02	75.02	94.03	19.37	25.3	106.5
Madrone	10.03	16.97	23.92	7.08	40.9	171.9
Live Oak	6.64	12.59	18.53	6.06	47.2	198.6
Overall	82.35	104.58	126.82	22.67	21.3	89.4
Biomass -- 66% CI						
Regeneration		---------- *Basal Area* ----------				
Douglas-fir	5.53	12.99	20.45	7.60	57.4	241.3
Tanoak	11.27	16.75	22.22	5.58	32.7	137.4
Madrone	0.09	0.38	0.68	0.30	76.1	319.8
Live Oak	0.19	0.58	0.97	0.40	67.2	282.3
Overall	20.21	30.70	41.20	10.70	34.2	143.7
All Product Groups		5,842.88				

Stand Number: 1
Stand ID:
Site Index: 70.00
Points: 13
Area (acres): 50.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Dimensional Wood -- 66% CI						
Sawtimber		*sq. ft.*				
Douglas-fir	56.67	80.00	103.33	23.53	29.2	106.1
Overall	56.67	80.00	103.33	23.53	29.2	106.1
Pulpwood -- 66% CI						
Chips		*sq. ft.*				
Tanoak	42.84	64.62	86.39	21.97	33.7	122.6
Madrone	2.02	6.15	10.28	4.17	67.1	244.1
Live Oak	5.82	15.38	24.95	9.65	62.2	226.1
Overall	58.18	86.15	114.13	28.23	32.5	118.1
Biomass -- 66% CI						
Regeneration		*sq. ft.*				
Douglas-fir	11.34	17.24	23.15	5.96	34.3	124.6
Tanoak	3.63	16.11	28.60	12.60	77.5	281.9
Madrone	0.04	4.53	9.02	4.53	99.1	360.6
Live Oak	0.00	0.50	1.00	0.50	99.1	360.6
Overall	25.99	38.39	50.79	12.51	32.3	117.5
All Product Groups	173.68	204.54	235.41	31.14	15.1	54.9

Stand Number: 2
Stand ID:
Site Index: 70.00
Points: 17
Area (acres): 70.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Dimensional Wood -- 66% CI						
Sawtimber		*sq. ft.*				
Douglas-fir	30.48	40.00	49.52	9.70	23.8	100.0
Overall	30.48	40.00	49.52	9.70	23.8	100.0

Stand Number: 2
Stand ID:

Site Index: 70.00
Points: 17

Area (acres): 70.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Pulpwood -- 66% CI						
Chips		---------- *sq. ft.* ----------				
Tanoak	65.41	84.71	104.00	19.67	22.8	95.7
Madrone	14.59	23.53	32.47	9.11	38.0	159.7
Live Oak	8.90	16.47	24.04	7.71	46.0	193.1
Overall	101.42	124.71	147.99	23.73	18.7	78.5
Biomass -- 66% CI						
Regeneration		---------- *sq. ft.* ----------				
Douglas-fir	5.53	12.99	20.45	7.60	57.4	241.3
Tanoak	11.27	16.75	22.22	5.58	32.7	137.4
Madrone	0.09	0.38	0.68	0.30	76.1	319.8
Live Oak	0.19	0.58	0.97	0.40	67.2	282.3
Overall	20.21	30.70	41.20	10.70	34.2	143.7
All Product Groups	170.76	195.41	220.06	25.12	12.6	53.0

Stand Number: 1
Stand ID:

Site Index: 70.00
Points: 13

Area (acres): 50.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Dimensional Wood -- 66% CI						
Sawtimber		---------- # ----------				
Douglas-fir	41.10	59.93	78.75	19.00	31.4	114.3
Overall	41.10	59.93	78.75	19.00	31.4	114.3
Pulpwood -- 66% CI						
Chips		---------- # ----------				
Tanoak	36.55	64.80	93.05	28.51	43.6	158.6
Madrone	1.54	5.66	9.77	4.15	72.7	264.6
Live Oak	1.51	5.81	10.11	4.34	74.1	269.5
Overall	47.56	76.27	104.98	28.96	37.6	136.9
Biomass -- 66% CI						
Regeneration		---------- # ----------				
Douglas-fir	458.07	576.92	695.77	119.91	20.6	74.9
Tanoak	460.00	623.08	786.15	164.53	26.2	95.2
Madrone	0.20	23.08	45.95	23.08	99.1	360.6
Live Oak	0.82	92.31	183.80	92.31	99.1	360.6
Overall	1,117.52	1,315.38	1,513.25	199.63	15.0	54.7
All Product Groups	1,262.87	1,451.58	1,640.29	190.39	13.0	47.3

Stand Number: 2
Stand ID:

Site Index: 70.00
Points: 17

Area (acres): 70.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Dimensional Wood -- 66% CI						
Sawtimber		---------- # ----------				
Douglas-fir	19.07	25.92	32.77	6.98	26.4	111.1
Overall	19.07	25.92	32.77	6.98	26.4	111.1

Stand Number: 2
Stand ID:

Site Index: 70.00
Points: 17

Area (acres): 70.0

Product Group / Product / Species	Lower Limit	Mean	Upper Limit	Standard Error	CI %error	C.V.
Pulpwood -- 66% CI						
Chips		---------- # ----------				
Tanoak	48.64	61.49	74.34	13.10	20.9	87.8
Madrone	4.55	8.15	11.76	3.68	44.3	186.0
Live Oak	6.06	13.64	21.21	7.72	55.5	233.4
Overall	67.21	83.28	99.36	16.39	19.3	81.1
Biomass -- 66% CI						
Regeneration		---------- # ----------				
Douglas-fir	96.40	158.82	221.24	63.63	39.3	165.2
Tanoak	809.71	1,041.18	1,272.64	235.94	22.2	93.4
Madrone	16.88	70.59	124.30	54.75	76.1	319.8
Live Oak	34.76	105.88	177.00	72.49	67.2	282.3
Overall	1,126.56	1,376.47	1,626.38	254.74	18.2	76.3
All Product Groups	1,225.16	1,485.67	1,746.18	265.54	17.5	73.7

TIMBER MANAGEMENT PLAN

Table of Contents

TIMBER MANAGEMENT PLAN

1. CURRENT PROPERTY OWNER

Parcel 1
Michael Kavanaugh
P.O. Box 104
Honeydew, California 95545
A.P. 107-112-001

Parcel 2
Michael Kavanaugh & Robert Landry
2333 Harris Street
Eureka, CA 95503
A.P. 107-112-002

Parcel 3
Kevin O'Donnel
2 Greglen Avenue
Nantucket, MA 02554
A.P. 107-112-003

2. TIMBER MANAGEMENT PLAN OBJECTIVES

The objective of the *"Timber Management Plan"* is to identify access, rights-of-ways & minimum stocking standards of the Forest Practice Rules required to maintain viable timber producing parcels.

3. PROJECT DESCRIPTION

A Joint Timber Management Plan (JTMP) applies to the "division" of land into assessor parcels containing less than 160 acres of Timber Production Zone (TPZ). Parcel is defined as "that portion of an Assessor's parcel that is timberland". Activities that may result in such a division include subdivision, lot line adjustment and conveyances of existing land units (e.g. land patents) underlying an Assessor's parcel zoned TPZ, when any conveyance contains less than 160 acres of TPZ land.

Management units correspond to three separate parcels being altered by a lot line adjustment. Since the recognition that two of the three parcels will result in substandard Timber Production Zone (TPZ) parcels, a Joint Timber Management Plan (JTMP) is required to demonstrate that the resulting management units will be suitable for timber production and harvesting. This JTMP is therefore being submitted to demonstrate to the County that the resulting substandard TPZ parcels can be jointly managed to maintain viable timber production.

4. ACCESS AND ROADS FOR JTMP MANAGEMENT UNITS

The management units are accessed by rock surfaced seasonal roads that lead from the county maintained Mattole Road.

Management Unit 1 - Management Unit 1 is accessed by a road system that forks approximately 1,000 feet north of the JTMP Area. This road is separate from the access roads to Management Units 2 and 3, and doesn't provide logging access to Management Units 2 and 3. Upon completion of the Lot Line Adjustment, logging access to Management Unit 1, including roads and skidtrails will not rely on any of the access roads or skidtrails over Management Units 2 and 3. Except for possible cable yarding tailholds on Management Unit 2, Management Unit 1 does not rely on the other management units for logging access. Management Unit 1 shall be provided with cable yarding tailholds and associated corridors over Management Unit 2 as necessary to permit cable yarding of Management Unit 1 pursuant to the attached Timber Management Plan Use Agreement.

Management Unit 2 - Management Unit 2 is accessed by a road system that forks approximately 1,000 feet north of the JTMP Area. This road is a shared access road between Management Units 2 and 3 and is separate from the access road to Management Unit 1, and does not provide logging access to Management Unit 1. Upon completion of the Lot Line Adjustment, logging access to Management Unit 2, including roads and skidtrails will not rely on any of the access roads or skidtrails over Management Unit 1. Except for possible cable yarding

tailholds on Management Unit 1, Management Unit 2 does not rely on any access roads or skidtrails over Management Unit 1. Management Unit 2 shall be provided with cable yarding tailholds and associated corridors over Management Unit 1 as necessary to permit cable yarding of Management Unit 2 pursuant to the attached Timber Management Plan Use Agreement.

Management Units 2 and 3 have a shared access road. Consequently, timber harvesting on the southern half of Management Unit 2 requires use of access roads, potential landing sites, skidtrails, and cable corridors across Management Unit 3. Management Unit 2 shall be provided access to roads and landings located across Management Unit 3 for the purpose of timber harvesting and logging access along the designated roadway mapped on the Timber Management Plan Map for the purpose of timber management activities pursuant to the attached Timber Management Plan Use Agreement.

Management Unit 3 - Management Unit 3 is accessed by a road system that forks approximately 1,000 feet north of the JTMP Area. This road is a shared access road between Management Units 3 and 2 and is separate from the access road to Management Unit 1. Management Unit 3 is not adjacent to, nor does it rely upon roads or access across Management Unit 1.

Management Unit 3 has a shared access road with Management Unit 2. Although Management Unit 3 is a TPZ zoned parcel containing 160 acres or more, there is a short road segment that crosses a portion of Management Unit 2 that would be beneficial in the timber harvesting of Management Unit 3. Consequently, timber harvesting on the southwestern portion of Management Unit 3 may use access roads, potential landing sites, skidtrails, and cable corridors across Management Unit 2. Management Unit 3 shall be provided access to roads and landings located across Management Unit 2 for the purpose of timber harvesting and logging access along the designated roadway mapped on the Timber Management Plan Map for the purpose of timber management activities pursuant to the attached Timber Management Plan Use Agreement.

The management units do not require specific access for skid trails and/or cable corridors. Access for new non-descript skid trails and cable corridor construction have been described in the attached Timber Management Use Agreement. The access described in the Timber Management Use Agreement is required to maintain viable timber management units. If new skid trails and cable corridors are required to be established across management unit boundaries their location should be jointly established by the affected management unit owners to benefit current and future timber operations. Landowners should consult with an RPF prior to the establishment of any skid trails or cable corridors. Any skid trail or cable corridor construction occurring within the JTMP area should be permitted under an approved THP or equivalent document, pursuant to the Timber Management Plan Use Agreement.

The Timber Management Plan Use Agreement is to insure that access is available for each management unit for the eventual commercial harvest of timber products. Each party shall have the right to construct skid trails and cable corridors, pursuant to the Timber Management Plan Use Agreement, across real property of the other parties for the purpose of forestry management and timber harvesting, provided that locations of new skid trails and cable corridors are determined by an RPF in association with approved THP or equivalent document.

5. MIMIMUN STOCKING STANDARDS

912.7, 932.7, 952.7 Resource Conservation Standards for Minimum Stocking [All Districts, note (b)(1)(D)]
The following resource conservation standards constitute minimum acceptable stocking in the Coast Forest District after timber operations have been completed.

(a) Rock outcroppings, meadows, wet areas, or other areas not normally bearing commercial species shall not be considered as requiring stocking and are exempt from such provisions.

(b) An area on which timber operations have taken place shall be classified as acceptably stocked if either of the standards set forth in (1) or (2) below are met within five (5) years after completion of timber operations unless otherwise specified in the rules.

(1) An area contains an average point count of 300 per acre on Site I, II and III lands or 150 on site IV and V lands to be computed as follows:

(A) Each countable tree [Ref. PRC § 4528(b)] which is not more than 4 inches d.b.h. counts 1 point.

(B) Each countable tree over 4 inches and not more than 12 inches d.b.h. counts 3 points.

(C) Each countable tree over 12 inches d.b.h. counts as 6 points.

(D) [Coast] Root crown sprouts will be counted using the average stump diameter 12 inches above average ground level of the original stump from which the sprouts originate, counting one sprout for each foot of stump diameter to a maximum of 6 per stump.

(2) The average residual basal area measured in stems 1 inch or larger in diameter, is at least 85 square ft. per acre on Site I lands, and 50 square ft. per acre on lands of Site II classification or lower. Site classification shall be determined by the RPF who prepared the plan.

(3) To the extent basal area standards are specified in the rules in excess of 14 CCR § 912.7(b)(2) [932.7(b)(2), 952.7(b)(2)], up to 15 square feet of basal area of those standards higher than the minimum may be met by counting snags, and decadent or deformed trees of value to wildlife in the following sizes:

(A) 30 inches or greater dbh and 50 feet or greater in height on site I and II lands;

(B) 24 inches or greater dbh and 30 feet or greater in height on site III lands; and

(C) 20 inches or greater dbh and 20 feet or greater in height on site IV and V lands.

(c) The substitution provided for in 14CCR § 912.7(b)(3) [932.7(b)(2), 952.7(b)(2)] may only be done when the potential spread of insects and diseases will not have a significantly adverse impact on long term productivity or forest health.

(d) The resource conservation standards of the rules may be met with Group A and/or B commercial species. The percentage of the stocking requirements met with Group A species shall be no less than the percentage of the stand basal area they comprised before harvesting. The site occupancy provided by Group A species shall not be reduced relative to Group B species. When considering site occupancy, the Director shall consider the potential long term effects of relative site occupancy of Group A species versus Group B species as a result of harvest. If Group A species will likely recapture the site after harvest, Group B species do not need to be reduced. The time frames for recapturing the site shall be consistent with achieving MSP. The Director may prohibit the use of Group A and/or B commercial species which are non-indigenous or are not physiologically suited to the area involved. Exceptions may be approved by the Director if the THP provides the following information & those exceptions are agreed to by the timberland owner:

(1) Explain and justify with clear and convincing evidence how using Group A non-indigenous, or Group B species to meet the resource conservation standards will meet the intent of the Forest Practice Act as described in PRC § 4513. The discussion shall include at least:

(A) The management objectives of the post-harvest stand;

(B) A description of the current stand, including species composition and current stocking levels within the area of Group B species. The percentage can be measured by using point-count, basal area, stocked plot, or other method agreed to by the Director.

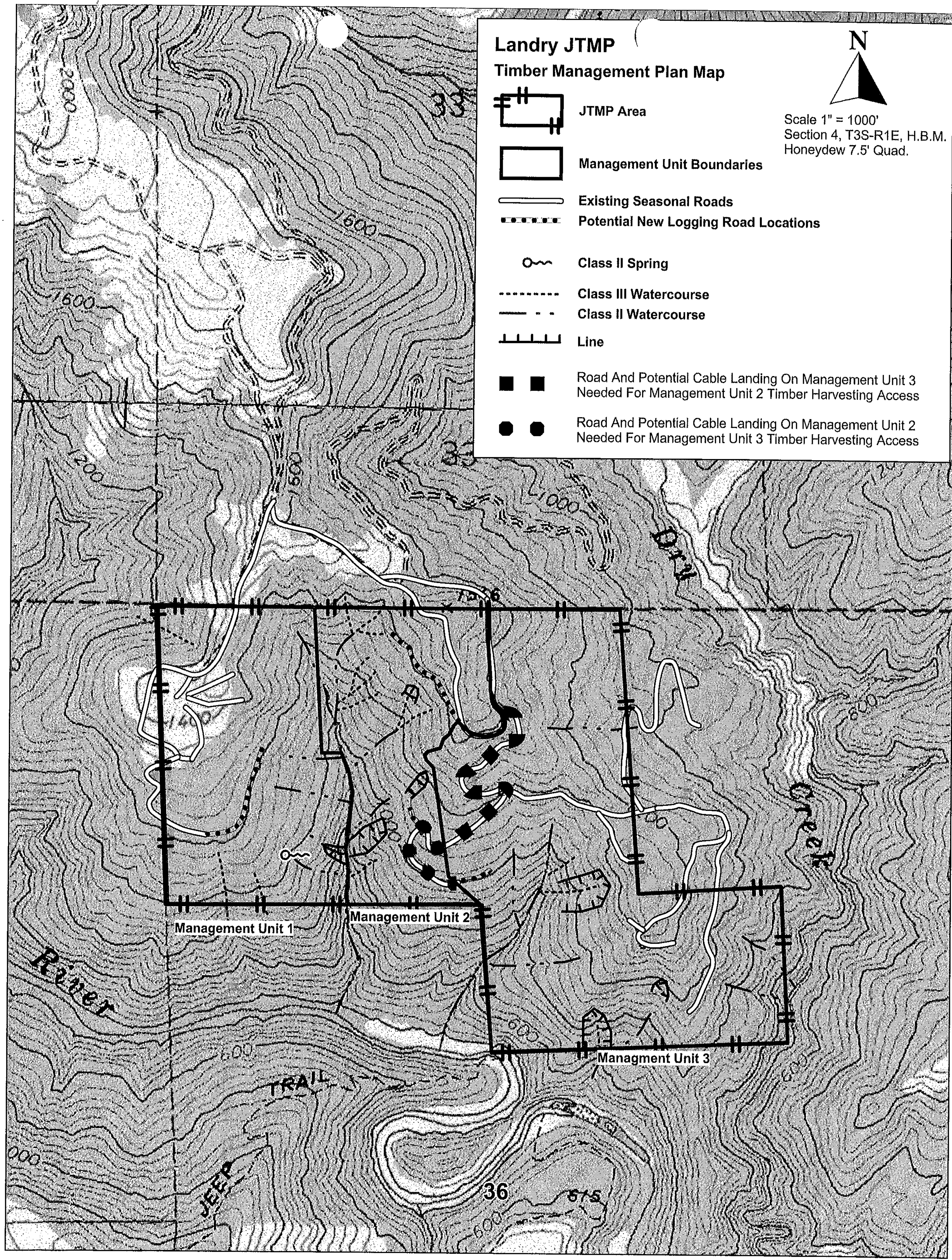
(C) The percentage of the post-harvest stocking to be met with Group B species. Post harvest percentages will be determined on the basis of stocked plots. Only the methods provided by 14 CCR §§ 1070-1075 shall be used in determining if the standards of PRC § 4561 have been met.

(D) A description of what will constitute a countable tree, as defined by PRC § 4528 for a Group B species and how such a tree will meet the management objectives of the post-harvest stand.

The Director, after an initial inspection pursuant to PRC § 4604, shall approve use of Group B species, as exceptions to the pre-harvest basal area percentage standard, if in his judgment the intent of the Act will be met, and there will not be an immediate significant and long-term harm to the natural resources of the state.

TIMBER MANAGEMENT PLAN USE AGREEMENT

1. Each of the parties shall have the right to use designated roadway across real property of the other parties as shown on the Timber Management Plan Map and described in the Timber Management Plan for the purpose of timber management activities. This may include, but is not limited to, road access for trucks, machinery and personnel.
2. Each of the parties shall have the right to construct skid trails and cable corridors across real property of the other parties, provided that locations of new skid trails and cable corridors are determined by an RPF in association with the preparation of a THP or other applicable permit. If a RPF identifies the need to construct new skid trails or cable corridors across management unit boundaries, the RPF shall mark their location on the ground. The RPF shall notify the management unit owners of the proposed location and the management unit owners shall be allowed to propose an alternative location. The RPF shall use the alternative location if said alternative is of reasonably equal utility to the management unit owners and of reasonably equal cost. The management unit owners should cooperate in good faith, reasonable manner in establishing the location of new skid trails or cable corridors.
3. It is recognized that repairs and maintenance of roads may be required periodically. Roads shall be maintained in substantially the same condition as is excepting for improvements to better maintain said roads including drainage structures and facilities and possibly road surfacing as needed. Roads shall be no wider or larger than is necessary for the particular use. Roads shall be generally no wider than 16 feet with widening for turns and turnouts as required for safety. Maintenance of roads shall be the responsibility of the landowner utilizing the roads for timber management.
4. No party shall be required to make payment to the other for the use of the roadway for timber management, save and except the maintenance thereof as herein provided.
5. Current and/or future owners of Management Units 1, 2, and 3 shall be considered "Party, Parties" and are subject to the Timber Management Unit Agreement.


Landry JTMP
Timber Management Plan Map
JTMP Area
Management Unit Boundaries
Existing Seasonal Roads
Potential New Logging Road Locations
Class II Spring
Class III Watercourse
Class II Watercourse
Line
Road And Potential Cable Landing On Management Unit 3 Needed For Management Unit 2 Timber Harvesting Access
Road And Potential Cable Landing On Management Unit 2 Needed For Management Unit 3 Timber Harvesting Access
N
Scale 1" = 1000'
Section 4, T3S-R1E, H.B.M.
Honeydew 7.5' Quad.
Management Unit 1
Management Unit 2
Managment Unit 3
River
Creek
TRAIL
JEEP
36